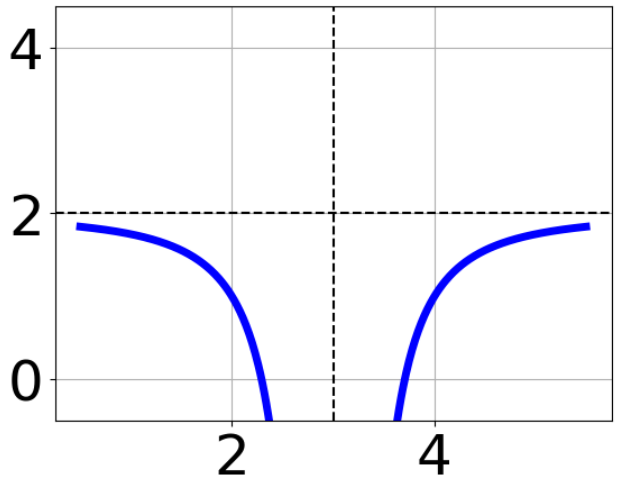
1. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x+3} + 2$

B. $f(x) = \dfrac{-1}{(x-3)^2} + 2$

C. $f(x) = \dfrac{-1}{x-3} + 2$

D. $f(x) = \dfrac{1}{(x+3)^2} + 2$

E. None of the above

---

2. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-88}{99x+22} + 1 = \frac{-88}{99x+22}$$

A. $x_1 \in [-1.1, -0.1]$ and $x_2 \in [-0.34, -0.04]$

B. $x_1 \in [-1.1, -0.1]$ and $x_2 \in [0.17, 0.28]$

C. $x \in [0.1, 1.8]$

D. $x \in [-0.22, 2.78]$

E. All solutions lead to invalid or complex values in the equation.

3. Determine the domain of the function below.

$$f(x) = \frac{6}{12x^2 - 12}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [-17.4, -14.6]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-17.4, -14.6]$ and $b \in [8.4, 9.8]$

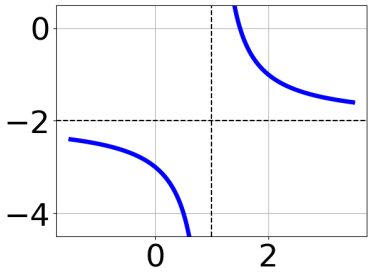
D. All Real numbers except $x = a$, where $a \in [-3.6, -0.6]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-3.6, -0.6]$ and $b \in [0.1, 2.5]$

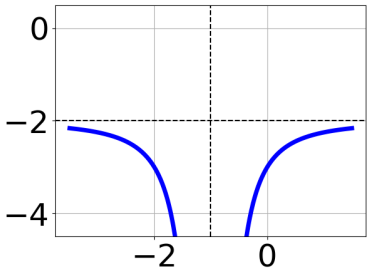
4. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x-1)^2} - 2$$

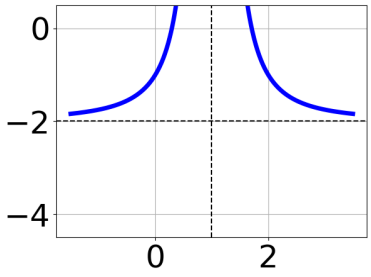
A.



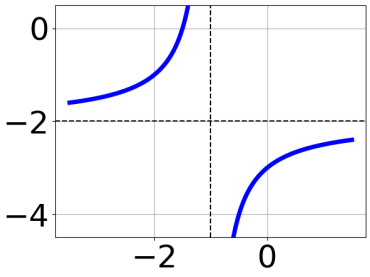
C.



B.



D.



E. None of the above.

5. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{4x}{-2x+3} + \frac{-4x^2}{-8x^2+4x+12} = \frac{7}{4x+4}$$

A. $x \in [-1.33, 0.28]$

B. $x_1 \in [-0.84, 2.52]$ and $x_2 \in [-0.5, 4.5]$

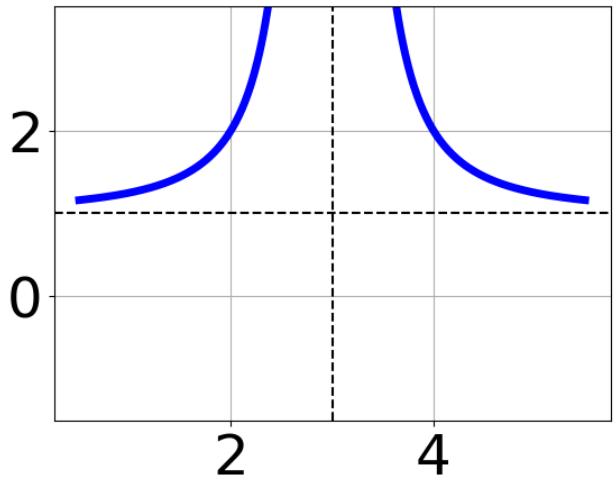
C. $x_1 \in [-0.84, 2.52]$ and $x_2 \in [-11.07, 0.93]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-3.83, -2.24]$

---

6. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x-3} + 8$

B. $f(x) = \dfrac{-1}{(x-3)^2} + 8$

C. $f(x) = \dfrac{1}{(x+3)^2} + 8$

D. $f(x) = \dfrac{1}{x+3} + 8$

E. None of the above

7. Determine the domain of the function below.

$$f(x) = \frac{6}{9x^2 - 27x + 18}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [8.93, 9.88]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [0.73, 1.14]$ and $b \in [1.29, 2.13]$

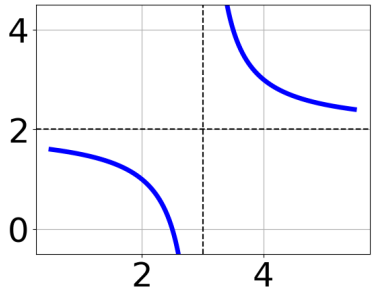
D. All Real numbers except $x = a$, where $a \in [0.73, 1.14]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [8.93, 9.88]$ and $b \in [17.21, 18.34]$

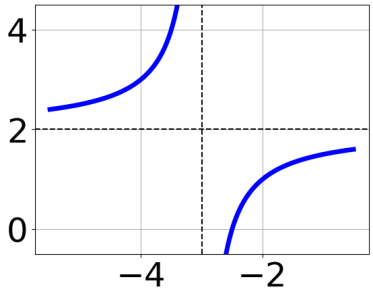
8. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x - 3} - 2$$

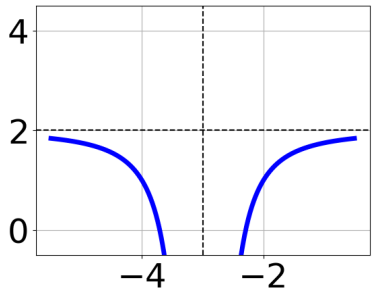
A.



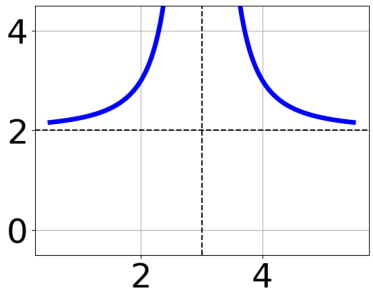
C.



B.



D.



E. None of the above.

9. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{7x}{6x+6} + \frac{-4x^2}{36x^2+60x+24} = \frac{-7}{6x+4}$$

A. $x_1 \in [-1.14, -0.86]$ and $x_2 \in [-0.7, -0.47]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [-1.47, -1.1]$ and $x_2 \in [-0.59, -0.06]$

D. $x \in [-1.14, -0.86]$

E. $x \in [-0.76, -0.61]$

---

10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{20}{-40x+20} + 1 = \frac{20}{-40x+20}$$

A. $x \in [0.5, 2.5]$

B. $x_1 \in [-1, 0.1]$ and $x_2 \in [-0.5, 2.5]$

C. $x \in [-1, 0.1]$

D. $x_1 \in [0, 1.1]$ and $x_2 \in [-0.5, 2.5]$

E. All solutions lead to invalid or complex values in the equation.

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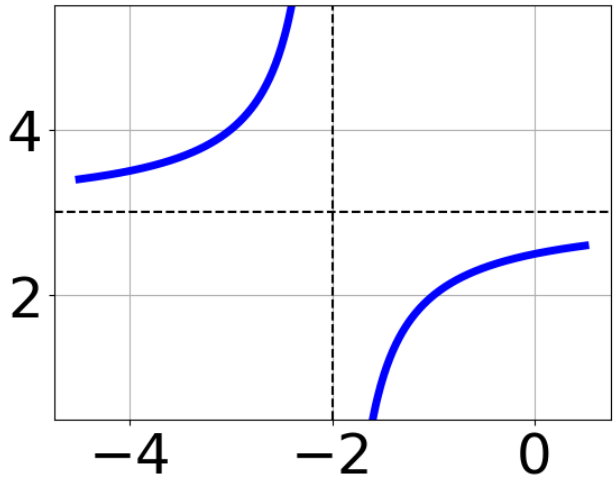
11. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x+2} + 3$

B. $f(x) = \dfrac{1}{(x-2)^2} + 3$

C. $f(x) = \dfrac{-1}{(x+2)^2} + 3$

D. $f(x) = \dfrac{1}{x-2} + 3$

E. None of the above

---

12. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-84}{84x+36} + 1 = \frac{-84}{84x+36}$$

A. $x \in [-1.43, 0.57]$

B. $x \in [0, 1.3]$

C. $x_1 \in [-0.7, 0.2]$ and $x_2 \in [-0.4, 1.7]$

D. $x_1 \in [-0.7, 0.2]$ and $x_2 \in [-0.9, -0.2]$

E. All solutions lead to invalid or complex values in the equation.

---

13. Determine the domain of the function below.

$$f(x) = \frac{6}{25x^2 + 45x + 18}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-2.1, -0.7]$ and $b \in [-0.9, -0.2]$

B. All Real numbers except $x = a$, where $a \in [-30.6, -29.5]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-30.6, -29.5]$ and $b \in [-15.9, -14.6]$

D. All Real numbers.

E. All Real numbers except $x = a$, where $a \in [-2.1, -0.7]$

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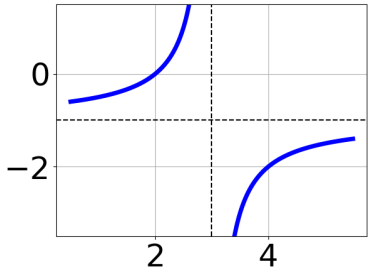
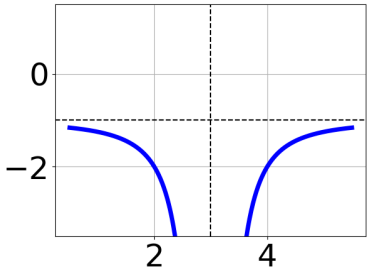
14. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x+3)^2} - 1$$

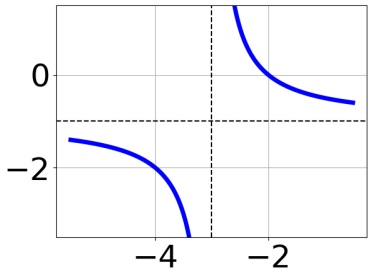
A.



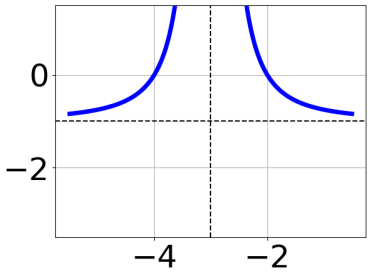
C.



B.



D.



E. None of the above.

---

15. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-6x}{-7x-5} + \frac{-3x^2}{-14x^2-38x-20} = \frac{-5}{2x+4}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x_1 \in [-3.93, -2.1]$ and $x_2 \in [-1.07, -0.51]$

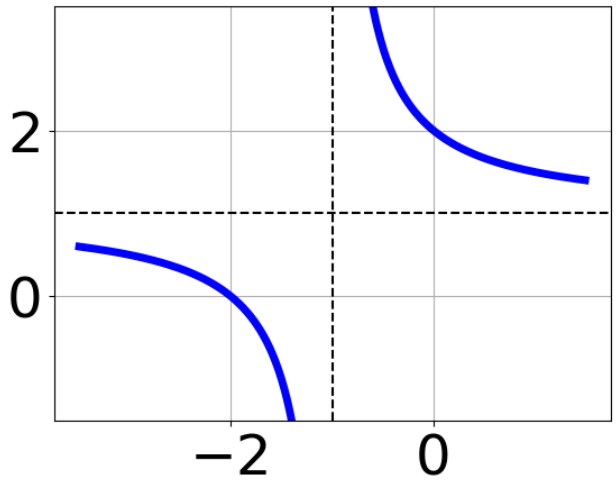
C. $x \in [-2.81, -0.99]$

D. $x_1 \in [-3.93, -2.1]$ and $x_2 \in [-0.69, -0.27]$

E. $x \in [-0.99, 0.12]$

---

16. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x-1} + 1$

B. $f(x) = \dfrac{1}{x+1} + 1$

C. $f(x) = \dfrac{-1}{(x-1)^2} + 1$

D. $f(x) = \dfrac{1}{(x+1)^2} + 1$

E. None of the above

17. Determine the domain of the function below.

$$f(x) = \frac{4}{15x^2 + 24x + 9}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [-15.49, -14.95]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-15.49, -14.95]$ and b $[-9.13, -8.74]$

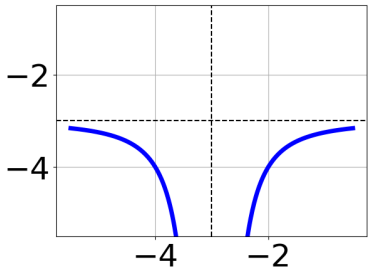
D. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.44, -0.83]$ and $b \in [-0.78, -0.34]$

E. All Real numbers except $x = a$, where $a \in [-1.44, -0.83]$

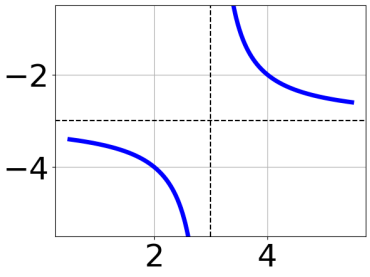
18. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x+3)^2} + 3$$

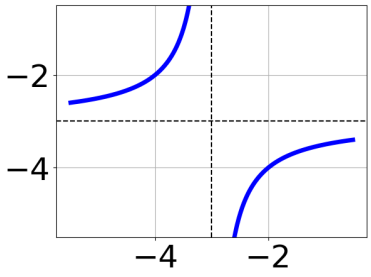
A.



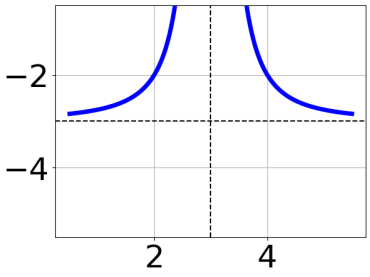
C.



B.



D.



E. None of the above.

19. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-5x}{4x+3} + \frac{-2x^2}{-12x^2+19x+21} = \frac{-7}{-3x+7}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [2.32, 2.42]$

C. $x \in [-0.88, -0.65]$

D. $x_1 \in [-0.97, -0.81]$ and $x_2 \in [0.47, 1.31]$

E. $x_1 \in [-0.88, -0.65]$ and $x_2 \in [2.07, 3.03]$

---

20. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-24}{60x-24} + 1 = \frac{-24}{60x-24}$$

A. $x_1 \in [-0.5, -0.2]$ and $x_2 \in [0.4, 2.4]$

B. $x_1 \in [0.3, 0.8]$ and $x_2 \in [0.4, 2.4]$

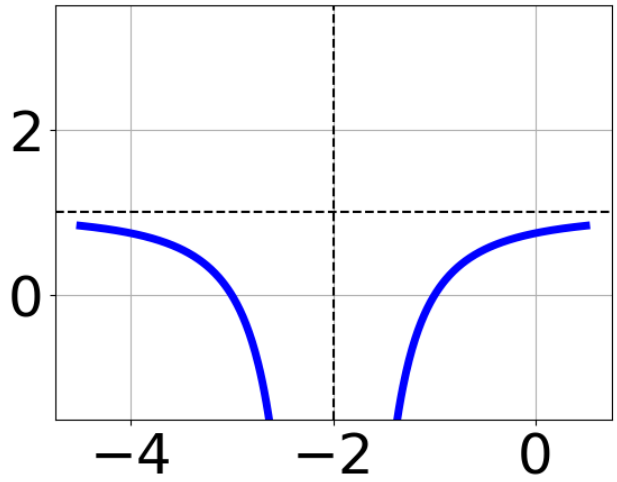
C. $x \in [0.4, 1.4]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-0.5, -0.2]$

---

21. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x-2)^2} + 1$

B. $f(x) = \dfrac{-1}{x+2} + 1$

C. $f(x) = \dfrac{-1}{(x+2)^2} + 1$

D. $f(x) = \dfrac{1}{x-2} + 1$

E. None of the above

---

22. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{8}{-4x+2} + 2 = \frac{-3}{-32x+16}$$

A. $x_1 \in [1, 2.3]$ and $x_2 \in [1.83, 2.12]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [0.5, 1.2]$ and $x_2 \in [1.49, 1.64]$

D. $x \in [1.55, 2.55]$

E. $x \in [0.5, 1.2]$

---

23. Determine the domain of the function below.

$$f(x) = \frac{3}{30x^2 + 10x - 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.3, 0.2]$ and $b \in [0.2, 1.4]$

B. All Real numbers except $x = a$, where $a \in [-1.3, 0.2]$

C. All Real numbers except $x = a$, where $a \in [-25.6, -24.6]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-25.6, -24.6]$ and $b \in [22.6, 25.6]$

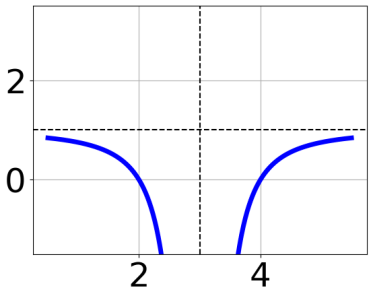
E. All Real numbers.

---

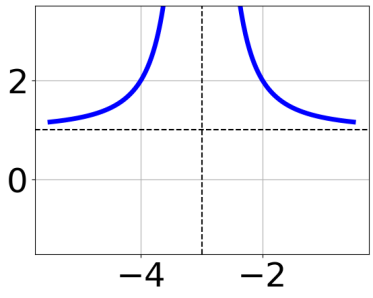
24. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x - 3} + 1$$

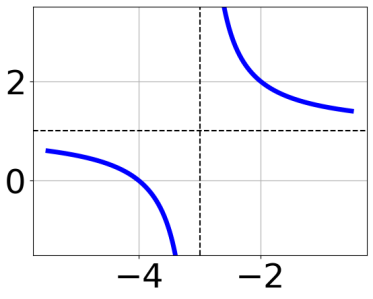
A.



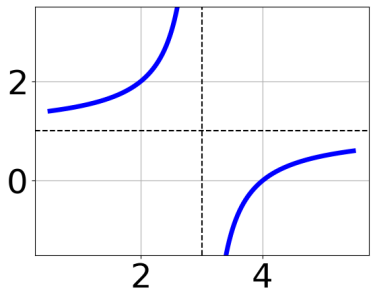
C.



B.



D.



E. None of the above.

---

25. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{7x}{-3x-5} + \frac{-4x^2}{-9x^2-36x-35} = \frac{7}{3x+7}$$

A. $x \in [-1.9, 5]$

B. $x_1 \in [-4.3, -2.9]$ and $x_2 \in [-2.45, -0.81]$

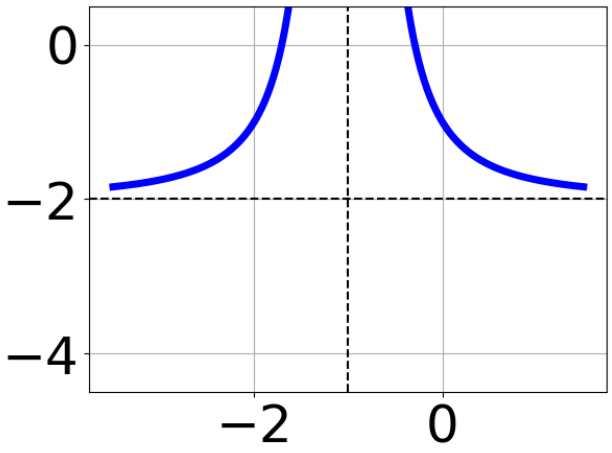
C. $x \in [-3.2, -0.7]$

D. $x_1 \in [-4.3, -2.9]$ and $x_2 \in [-0.67, 1.13]$

E. All solutions lead to invalid or complex values in the equation.

---

26. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{(x-1)^2} - 2$

B. $f(x) = \dfrac{-1}{x-1} - 2$

C. $f(x) = \dfrac{1}{x+1} - 2$

D. $f(x) = \dfrac{1}{(x+1)^2} - 2$

E. None of the above

---

27. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 29x + 15}$$

A. All Real numbers except $x = a$, where $a \in [11.1, 14]$

B. All Real numbers except $x = a$, where $a \in [-1.9, 1.2]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.9, 1.2]$ and $b \in [1.3, 3.6]$

D. All Real numbers.

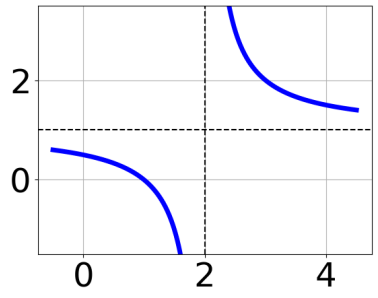
E. All Real numbers except $x = a$ and $x = b$, where $a \in [11.1, 14]$ and $b \in [12.8, 15.3]$

---

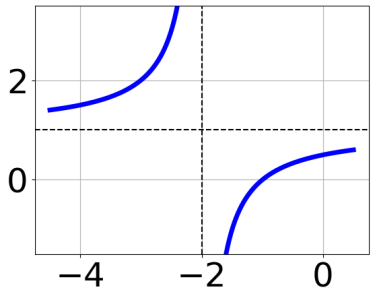
28. Choose the graph of the equation below.

$$f(x) = \frac{1}{(x+2)^2} + 1$$

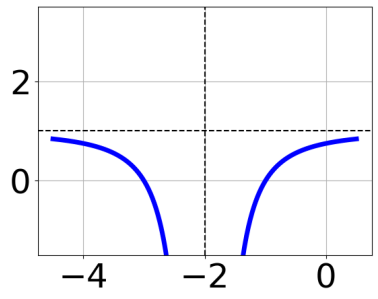
A.



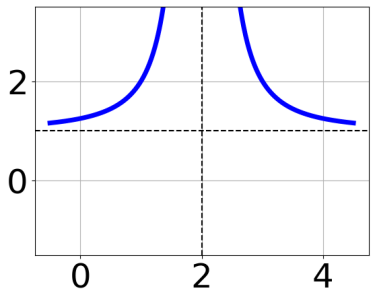
C.



B.



D.



E. None of the above.

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29. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{2x}{-7x-7} + \frac{-2x^2}{49x^2+98x+49} = \frac{-5}{-7x-7}$$

A. $x_1 \in [-2.08, -1.92]$ and $x_2 \in [-1.06, -0.56]$

B. $x \in [-1.07, -0.9]$

C. $x_1 \in [-2.08, -1.92]$ and $x_2 \in [-1.23, -1.13]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-1.4, -1.1]$

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30. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4}{8x-6} + 9 = \frac{9}{64x-48}$$

A. $x \in [-0.18, 1.82]$

B. $x_1 \in [-2.68, 0.32]$ and $x_2 \in [0.55, 0.83]$

C. $x_1 \in [-0.18, 2.82]$ and $x_2 \in [0.84, 1.26]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-2.68, 0.32]$
